

What is claimed is:

1. A synthetic pulmonary surfactant comprising a pharmaceutically acceptable phospholipid admixed with a polypeptide comprising at least 10 amino acid residues and no more than about 60 amino acid residues, said polypeptide including a sequence having alternating hydrophobic and hydrophilic amino acid residue regions represented by the formula $(Z_n U_m)_n Z_d$, wherein:

Z is a hydrophilic amino acid residue independently selected from the group consisting of R and K;

U is a hydrophobic amino acid residue independently selected from the group consisting of V, I, L, C, Y and F;

a has an average value of about 1 to about 5;

b has an average value of about 3 to about

20;

c is 1 to 10; and

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d is 1 to 3;
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said polypeptide, when admixed with a pharmaceutically acceptable phospholipid, forming a synthetic pulmonary surfactant having a surfactant activity greater than the surfactant activity of the phospholipid alone.

2. The synthetic pulmonary surfactant of claim 1 wherein said polypeptide has an amino acid residue sequence represented by the formula:

KLLLLKLLLLKLLLLKLLLLK SEQ ID No 1

3. A method of treating respiratory distress syndrome comprising administering a therapeutically effective amount of a synthetic pulmonary surfactant, said surfactant comprising a pharmaceutically acceptable phospholipid admixed with an effective amount of a polypeptide comprising at least 10 amino acid residues and no more than about 60 amino acid residues, said polypeptide including a sequence having

alternating hydrophobic and hydrophilic amino acid
residue regions represented by the formula $(Z_a U_b)_c Z_d$,
wherein:

5 Z is a hydrophilic amino acid residue
independently selected from the group consisting of R
and K;

 U is a hydrophobic amino acid residue
independently selected from the group consisting of V,
I, L, C, Y and F;

10 a has an average value of about 1 to about 5;
 b has an average value of about 3 to about
20;

 c is 1 to 10; and
 d is 1 to 3;

15 said polypeptide, when admixed with a
pharmaceutically acceptable phospholipid, forming a
synthetic pulmonary surfactant having a surfactant
activity greater than the surfactant activity of the
phospholipid alone.

20 4. The method of treating respiratory distress
syndrome described in claim 3 wherein said polypeptide
has an amino acid residue sequence represented by the
formula:

a KLLLLKLLLLKLLLLKLLLLK

SEQ ID NO 1

25 5. A polypeptide whose amino acid residue
sequence is represented by the formula:

a KLLLLKLLLLKLLLLKLLLLK

SEQ ID NO 1

add a 4